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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,812	10/03/2003	Christopher Brown	NOR-031 (16135RO)	3264

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GUERIN & RODRIGUEZ, LLP
5 MOUNT ROYAL AVENUE
MOUNT ROYAL OFFICE PARK
MARLBOROUGH, MA 01752

EXAMINER	
FAROUL, FARAH	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/678,812	**Applicant(s)** BROWN ET AL.	
	Examiner Farah Faroul	**Art Unit** 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 January 2008*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6-11,13-16 and 18-20* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-3,6-11,13-16 and 18-20* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *03 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *01/16/2008*.
4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The following Office Action is based on the amendment filed on January 31, 2008, having claims 1-3, 6-11, 13-16, and 18-20 (claims 4-5, 12 and 17 having been cancelled) and figures 1-10.

Terminal Disclaimer

2. The terminal disclaimer filed on January 24, 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application No. 10/678,812 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 6-11, 13-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iacovino (US 2004/0085954) in view of Chi (US 6,654,341).

For claim 1, Iacovino discloses receiving an incoming signal at a first card of a network element from over a network (paragraph 34, lines 1-17 wherein an incoming signal is received from over a network);

Incorporating protection-signaling information (paragraph 45, lines 1-11 wherein protection information is encoded onto a status byte for each STS-1 signal) obtained from the incoming signal into a first out-of-band signal (element 770 in Figure 7) (paragraph 45, line 1 to paragraph 46, line 8 wherein the protection-signaling information is transferred onto the out-of-band signal (channel 770));

Transmitting the first out-of-band signal with the protection signaling information incorporated therein from the first card to a second card in the network element over a link between the cards (wherein the out-of-band signal is transmitted over the OOBS channels between the cards); Incorporating, by the second card, the protection-signaling information into a second out-of-band signal (paragraph 40)

Aggregating protection-signaling information obtained from out-of-band signals (paragraphs 48-49, paragraph 40, lines 1-9 wherein the protection-signaling information from out-of-band signals are combined) that are received by the second card from a plurality of cards (Fig 9, step 910)

For claim 1, Iacovino discloses the entire claimed invention except for simultaneously transmitting, from the second card to the plurality of cards, the second out-of-band signal having the aggregated protection-signaling information

Chi, from the same or similar field of endeavor, teaches transmitting a second out-of-band signal containing the information received by the second card to a plurality of cards (see Figure 12; wherein switch 1230 sends a K-byte signal to switch 1240 then to the switches 1210 and 1220 and column 6 lines 29-32; wherein information concerning availability of a particular protection line as well as information concerning a fault is distributed amongst the switching elements through K-byte signaling), and also suggests that multiple rings may share a protection line by using K-byte signaling (see column 5 lines 10-14). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Iacovino's invention to include Chi's limitation in order to simultaneously transmit the second out-of-band signal to more than one card (switch) for the purpose to have more back-up cards (switches) for redundancy to increase protection and reliability.

For claim 10, Iacovino discloses forwarding the protection-signaling information from the first card to a third card adjacent to the first card in the network element over a second link different from the link used to carry the first out-of-band signal (paragraph 46, lines 10-16 wherein up to 16 line modules are communicating protection information (paragraphs 45, 47) over different transmission links)

For claim 2, Iacovino discloses the first card and the third card are tributary cards (see Fig 6, lines modules)

For claim 3, Iacovino discloses the first card is a tributary card and the second card is a cross-connect card (See Fig 6, line and switch modules)

For claim 6, Chi discloses receiving the second out-of-band signal having the aggregated protection-signaling information from the second card and determining which portion of the aggregated protection-signaling information to process (see Figure

12 and column 6, lines 18-21, wherein the K-byte signal is received by the last switch 1220 which process the portion of information that indicates the use of protection line in ring 1205).

For claim 7, Iacovino discloses the protection signaling information includes protection-switching protocol information (paragraphs 42-43 wherein the protection-signaling information includes UPSR)

For claim 8, Iacovino discloses the incoming signal is an optical signal having a transport overheard, and the protection-switching information is carried by K1 and K2 bytes of the transport overhead (paragraph 8, lines 1-10, paragraph 15, lines 1-20 wherein the signaling information is carried by K1 and K2 bytes of the transport overhead)

For claim 9, Iacovino discloses each out-of-band signal is a frame transmitted at a frame rate used for synchronous data transmission of optical signals (paragraph 7 and paragraphs 38-39 wherein the out-of-band signal is transmitted as a rate typical of optical signals (OC-48))

For claim 11, Iacovino discloses transmitting protection-signaling information from each of a plurality of tributary cards to a cross-connect card in an out-of-band signal (Fig 6, line module and switch module);

Collecting the protection-signaling information obtained by the cross-connect card from the plurality of tributary cards (Fig 6, line modules and switch module);
Incorporating the collected protection-signaling information into an out-of-band signal

(paragraph 45, lines 1-11 wherein protection information is encoded onto a status byte for each STS-1 signal)

Forwarding protection-signaling information from one of the plurality of tributary cards to an adjacent one of the plurality of tributary cards over a different link than a link used to carry the out-of-band signal (paragraph 46, lines 10-16 wherein up to 16 line modules are communicating protection information (paragraphs 45, 47) over different transmission links)

For claim 11, Iacovino discloses the entire claimed invention except for simultaneously transmitting the out-of-band signal with the collected protection-signaling information incorporated therein from the cross-connect card to each tributary card in the plurality of tributary cards.

Chi, from the same or similar field of endeavor, teaches transmitting a second out-of-band signal containing the information received by the second card to a plurality of cards (see Figure 12; wherein switch 1230 sends a K-byte signal to switch 1240 then to the switches 1210 and 1220 and column 6 lines 29-32; wherein information concerning availability of a particular protection line as well as information concerning a fault is distributed amongst the switching elements through K-byte signaling), and also suggests that multiple rings may share a protection line by using K-byte signaling (see column 5 lines 10-14). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Iacovino's invention to include Chi's limitation in order to simultaneously transmit the second out-of-band signal to more than one card (switch) for the purpose to have more back-up cards (switches) for redundancy to increase protection and reliability.

For claim 13, Iacovino discloses the protection-signaling information includes K1 and K2 of a transport overhead of an optical signal (paragraph 7 and paragraphs 38-39 wherein the out-of-band signal is transmitted as a rate typical of optical signals (OC-48))

For claim 14, Iacovino discloses a backplane; a first card connected to the backplane (paragraph 37), the first card incorporating protection-signaling information in a first out-of-band signal (paragraph 45, lines 1-11 wherein protection information is encoded onto a status byte for each STS-1 signal);

A second card connected to the backplane and in communication with the first card (paragraph 37), the second card obtaining protection-signaling information from an incoming signal arriving at the second card from over a network, generating a second out-of-band signal having the obtained protection-signaling information (paragraphs 38 and 45)

Receiving out-of-band signals having protection signaling information from a plurality of cards, aggregating the protection signaling information in the received out-of-band signals (paragraphs 48-49, paragraph 40, lines 1-9 wherein the protection-signaling information from out-of-band signals are combined).

For claim 14, Iacovino discloses the entire claimed invention except for simultaneously transmitting the aggregated protection-signaling information to the plurality of cards using the first out-of-band signal.

Chi, from the same or similar field of endeavor, teaches transmitting a second out-of-band signal containing the information received by the second card to a plurality of cards (see Figure 12; wherein switch 1230 sends a K-byte signal to switch 1240 then to the switches 1210 and 1220 and column 6 lines 29-32; wherein information concerning availability of a particular protection line as well as information concerning a fault is distributed amongst the switching elements through K-byte signaling), and also suggests that multiple rings may share a protection line by using K-byte signaling (see column 5 lines 10-14). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Iacovino's invention to include Chi's limitation in order to simultaneously transmit the second out-of-band signal to more than one card (switch) for the purpose to have more back-up cards (switches) for redundancy to increase protection and reliability.

For claim 15, Iacovino discloses the first card is a cross-connect card and the second card is a tributary card (see switch and line modules in Fig 6).

For claim 18, Iacovino discloses the third card connected to the first card over a first link and the second card by a second link, the third card receiving the protection-signaling information from the first card over the first link and from the second card over a second link (paragraph 46, lines 10-16 wherein up to 16 line modules are communicating protection information (paragraphs 45, 47) over different transmission links)

For claim 16, Iacovino discloses the first and third cards are tributary cards (see Fig 6, line modules)

For claim 19, Iacovino discloses each out-of-band signal is a frame transmitted at a frame rate used for synchronous data transmission of optical signals (paragraph 7 and paragraphs 38-39 wherein the out-of-band signal is transmitted as a rate typical of optical signals (OC-48))

For claim 20, Iacovino discloses the protection-signaling information includes bytes K1 and K2 of a transport overhead of an optical signal (paragraph 8, lines 1-10, paragraph 15, lines 1-20 wherein the signaling information is carried by K1 and K2 bytes of the transport overhead (box 1 of Fig 1) of the incoming signal).

Response to Arguments

4. Applicant's arguments with respect to claims 1-3, 6-11, 13-16, and 18-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Farah Faroul whose telephone number is 571-270-1421. The examiner can normally be reached on Monday - Friday 6:30 AM - 4 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Firmin Backer can be reached on 571-272-6703. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

F.F.

FIRMIN BACKER
SUPERVISORY PATENT EXAMINER